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seem to conflict, or may hereafter conflict with facts deduced from actual study of Nature, and thus prepare their minds for the reception of such truths as may be discovered, without embittered discussions.

Patience, too, must be counselled. For much delay will ensue before this desired result is arrived at; patience under attack, patience under misrepresentation, but never controversy.

Thus will be hastened the time, when the glorious, all sufficient spiritual light, which though given through another race, we have adopted as our own, shall shine with its pristine purity, freed from the incrustations with which it has been obscured by the vanity of partial knowledge, and the temporary contrivances of human polity.

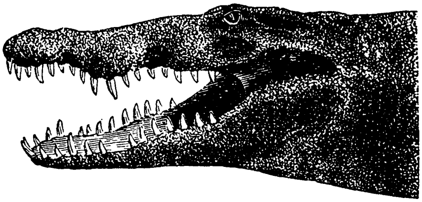
So, too, by freely extended scientific culture, may we hope that the infinitely thicker and grosser superstitions and corruptions will be removed, which greater age and more despostic governments have accumulated around the less brilliant, though important religions of our Asiatic Aryan relatives. These accretions being destroyed, the principal difficulty to the reception by those nations of higher spiritual truths will be obviated, and the intelligent Hindoo or Persian will not be tardy in recognizing in the pure life and elevated doctrine of the sincere Christian, an addition to, and fuller expression of religious precepts with which he is familiar. In this manner alone may be realized the hope of the philosopher, the dream of the poet, and the expectation of the theologian. A Universal Science, and a Universal Religion, coöperating harmoniously for the perfection of man and the glory of his Creator.

THE CROCODILE IN FLORIDA.

BY WM. T. HORNADAY.

In the warm, placid waters of tropical streams whose banks are bordered by reedy marshes and forests of perpetual green, is the home of the crocodile. About the middle of the day numbers may be seen lying lazily on the banks enjoying the heat, their polished scales shining in the sunlight, and all looking the very picture of tropical languor and repose. Its daily food is the fishes that inhabit its native element, but many a bright-plumed water-fowl and unsuspecting quadruped falls a prey to its rapacity. Animals drinking at the stream's margin or swimming across are seized in the huge reptile's powerful jaws, dragged under water, drowned and devoured. The crocodile evinces a decided preference for tainted meat, and after capturing large prey it is often kept uneaten in the water until in a state of partial decomposition. The males are very pugnacious and often fight desperately for possession of the females. Sometimes an individual is captured whose tail is entirely gone, often the end is missing, sometimes a leg is wholly or partly wanting. Last winter we killed an alligator whose upper jaw was broken off squarely half way up to the eyes by some long previous accident.

Fig. 211.



Head of Florida Crocodile.

The female crocodile lays from twenty to thirty eggs at a time. With her feet and nose she scoops a hole in the mud or sand on the shore, taking care to select a slightly elevated situation, and in this deposits her eggs in several layers, one upon another, placing a coat of earth, reeds and grass over each layer. The heat generated by the fermentation of this mass is sufficient to hatch the eggs in about thirty days.

While the crocodiles are distributed throughout all the southern hemisphere, in fact in all tropical regions, their cousins, the alligators, are confined to America; one species, the *A. Mississippensis* Gray, being especially abundant in the southern United States. It was formerly thought that the crocodile did not inhabit Australia, but it is now known to be there in respectable numbers, some specimens of great size having been captured. No one species of the *Crocodilidœ* is universally distributed, but the genus *Crocodilus* is widely known and has a greater range than any of its congeners. The species are often confined to certain localities, and in a few their limits are very circumscribed.

The two American species of *Crocodilus*, viz., *rhombifer* and *acutus*, were first described by Cuvier as confined to the West Indies and South America, which view was accepted by naturalists for a long time. Subsequently the *C. acutus* has been discovered in different parts of Central America, and in 1870 Professor Jeffries Wyman described a skull from Florida as belonging to that species. Reports are current in Florida of a true crocodile existing there, but specimens have not been secured until very recently. The present year has thrown more light upon the subject by the capture of two fine specimens.

My personal observations on the subject were confined to the southeast coast of Florida, particularly the vicinity of Biscayne Bay. While there last winter collecting for the Museum of Prof. Ward, of Rochester, New York, I obtained sight of a reptile that I at first supposed to be a large alligator, but which a nearer view convinced me was a crocodile. After two unsuccessful attempts I succeeded in killing him by lying in wait for him with my rifle, opposite his favorite mud-wallow on the bank of the stream. It proved to be a male,—huge, old and ugly. His tenacity of life was surprising, and his frantic struggles in and out of water made the fight interesting for some time. He lived for quite an hour after six rifle-balls had been fired into his nape in the direction of the brain. He measured fourteen feet in length, and his girth at a point midway between fore and hind legs was five feet two inches. His teeth were large and blunt; his head rugose and knotty, with armor plates very large and rough, all conspiring to give him a very ugly and savage appearance. On dissection it was found that he had been very pugnacious, or else was a persecuted and unfortunate individual. Three of his teeth were more or less shattered; the tibia and fibula of the right hind leg had been broken in the middle and united, also one of the metatarsal bones of the same limb; about five inches had been bitten off the end of his tail leaving it quite blunt, and for some reason, probably an old wound, two of the vertebræ near the middle of the tail had grown together solidly at an awkward angle.

The day following the above capture (January 22, 1875) I had the further good fortune to kill at the same spot the mate of this crocodile, a beautiful female, measuring ten feet eight inches.

There was a striking contrast between the two specimens! The head of the female was regular in outline, comparatively smooth, teeth white, regular and sharp, plates even in surface and contour, and colors very marked. The entire under surface of both specimens was pale yellow, shading gradually darker up the sides with fine irregular streaks and spots of black. On the upper parts of the female through the entire length the black and yellow mottling was about uniform, the yellow rather predominating. The general appearance of the female was decidedly yellowish, while the back and tail of the male showed an almost entire absence of yellow, the prevailing color being a leaden, lustreless black. In brightness of color, smoothness of armor, and litheness of contour the female greatly outranked her rough and burly lord. The stomachs of both specimens were quite empty, but in the æsophagus of the male were the torn remains of two mud-hens in a state of disgusting decomposition. The ovary of the female contained four hundred and twenty eggs, varying from the size of No. 8 shot to a hen's egg, all perfectly spherical.

The exact locality of the captures was a narrow, very deep and crooked stream known as Arch Creek, flowing from the Everglades into the head of Biscayne Bay. While at Biscayne I collected abundant evidence that crocodiles, though rare, exist in various tributaries of the Bay. On the bank of Arch Creek, I found the skull, fifteen inches long, minus the lower jaw, of a crocodile belonging to the same species as the large specimens. No one could give me any information concerning it.

I succeeded in getting the perfect skull of a small specimen killed a few weeks before in Indian Creek, on the east side of the bay, quite near the seashore. Its length from occiput was seven and one-half inches. I was shown a small stuffed specimen fourteen and one-half inches in length, captured September 26, 1874, at the mouth of Miami River, ten miles farther down the bay. All the above specimens were taken in water that is brackish about half the time, being influenced by the tide. Prof. Ward has recently received a crocodile (skin and skeleton) from Lake Worth, Florida, ninety miles north of Biscayne Bay, which is of the same species as the foregoing. The skin measures nine feet ten inches.

In determining the species of these specimens I follow the late Dr. J. E. Gray, of the British Museum, as the best recent authority, his synopsis of recent crocodilians being the latest, most minute and comprehensive. See Trans. Zool. Soc., 1867, vi, p. 125, *et seq.* Having been unable to examine the skull considered by Prof. Wyman it is impossible to give the differences between it and those in hand, but these latter certainly do not answer to any description of *C. acutus*, which at first I supposed them to be.

The following is Dr. Gray's description of *C. acutus*, and of the genus which he calls

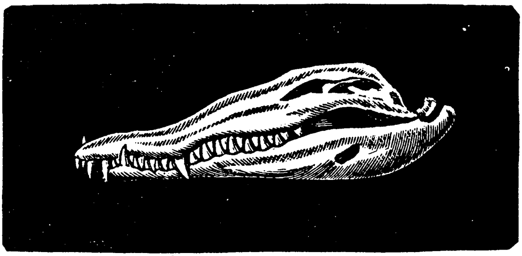
"MOLINIA.—Face elongate; forehead swollen, convex, especially in the adult; orbits without any anterior ridge. Nuchal plates two or four, small. Cervical disc rhombic, of six plates, side plates generally small. The legs fringed with a series of triangular, elongate scales. Toes webbed. Scales of the forearm and thigh thin, smooth."

"Muzzle oblong, elongate, slender, with a swollen convexity on the middle of the face before the eyes. Nostril not separated by a long ridge; the internal nostril posterior with an oblong sloping opening; intermaxillary suture produced behind between the ends of the maxillæ."

"M. AMERICANA.—Face slender, dorsal plates irregular; the central series small, keeled; lateral scattered, strongly keeled. Nasal bones produced to the nostrils."

It is necessary to give the characteristics of the genus since a very few points are sufficient to distinguish the species of *Molinia* of which there are only two. I shall now describe specimens of which there is a series of six, varying from fourteen and one-half inches to fourteen feet in length. The description refers to the *adult* specimens, of which we have three.

Fig. 212.

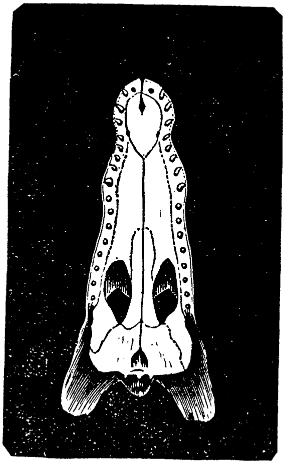


Skull of Florida Crocodile. Side view.

Face elongate; forehead concave or flat; orbits without any anterior ridge. Nuchal plates four, small; three small keeled scales on each side of the neck between nuchal and cervical plates, forming a row parallel to the row of nuchals, cervical disc rhombic, of six plates; legs fringed with a series of elongate scales. Toes of fore feet entirely free, the third and fourth hind toes partly united, and a very slight membrane between second and third. Scales of the forearm and thigh thick, and many convex or keeled. Dorsal plates in four longitudinal series; the vertebral series regular, large, average one-third broader than long, keeled; lateral series scattered, irregular hexagons, strongly keeled.

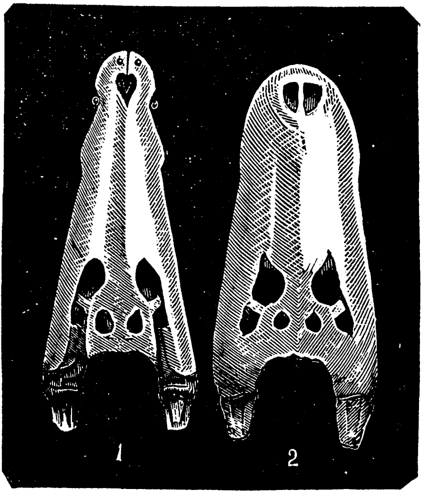
Muzzle elongate, broad in large specimens, with a high, swollen and prominent convexity on the middle of the face before the eyes. Nasal bones produced dividing the edges of the nostril; the intermaxillary suture produced behind between the ends of the maxillæ, the maxillary and intermaxillary bones pitted and tuberculated.

Fig. 213.



Skull of Florida Crocodile. Under surface, showing outline of upper jaw.

Fig. 214. Fig. 215.



Upper surface of skull. 1, Florida Crocodile; 2, Alligator.

These specimens resemble the *C. acutus* and *C. rhombifer* Cuv. (*Molinia Americana* and *Palinia rhombifera* of Gray) in about an equal number of particulars, the main point of difference from the latter named species being the four rows of dorsal plates, of which the *rhombifer* has six. In fact these specimens seem to stand between the two species just mentioned, being equally related to each. The characters I have enumerated above seem distinctive, and to indicate a new species for which I would propose the name *Crocodilus Floridanus*, or Florida Crocodile.

We present, for general illustration, a cut of the skull of an *Alligator Mississippensis* (Fig. 215) compared with the skull of a crocodile (Fig. 214). Both are from the same locality, Biscayne, Florida. The length of the alligator to which this skull belonged was nine feet ten inches, and that of the crocodile was ten feet eight inches, the figure being taken from the skull of the female here described.

I append the following measurements, in inches, of the three largest crocodile skulls. The first is that of the male 14 feet in length; the second that of the female 10 feet 8 inches in length; and the third, that of the Lake Worth specimen, 9 feet 10 inches in length.

Extreme length of head, ...	31½	21½	22
Length of skull from occiput, ...	24¾	18	18
Greatest width behind, ...	14½	9½	10
Width of forehead before, ...	5½	4	4
" " " behind, ...	7	4½	4¾
Breadth at notch, ...	4½	3	3
" " 10th tooth, following curve, . .	12½	7⅜	7¾
" " 14th " " " .	13	8	9
Number of teeth above.	18	18	19
" " " below.	15	15	15

REVIEWS AND BOOK NOTICES.

GEOGRAPHICAL VARIATION IN COLOR AMONG SQUIRRELS.—We have previously, in papers by Messrs. R. Ridgway and J. A. Allen, presented our readers with the latest views on the subject of the geographical variation in size, proportions and color among North American birds, and now reproduce in part a recent paper by Mr. J. A. Allen on the same subject, particularly variations in color as applied to the squirrels of America north of Mexico, published in the "Proceedings of the Boston Society of Natural History" (vol. xvi, Feb. 4, 1874). This is a subject to which local collectors can very largely contribute by the transmission of marked varieties or specimens possessing any peculiarities in size, proportions or color to the Museum of Comparative Zoology at Cambridge or to the Smithsonian Institution, where they can be studied to the best advantage, as large numbers of the commonest